

REMARKS

This amendment is submitted with a Request for Continued Examination in response to the Final Office Action mailed on September 9, 2004 and the Advisory Action mailed December 14, 2004.

Claims 1, 5, 15, 19, 29 and 33-35 have been amended; claims 2-4, 6-8, 16-18, 20-22 and 30-31 have been cancelled; and claims 36-43 have been added. Claims 1, 5, 9-15, 19, 23-29 and 32-43 are pending.

Claim 1 has been amended to include the features previously recited in claims 2-4, which have been cancelled. In addition, claim 1 now recites that the M-byte checksum format of the application error checking information is incompatible with the N-byte checksum format of the data storage error checking information, and claim 1 also includes a step of converting the application error checking information into a format that is compatible with the format of the data storage error checking information for subsequent comparing. Similar amendments have been made to the other independent claims.

New dependent claims 36-43 recite more specific formats and use of the error checking information, including: formats for which M is an integer multiple of N; formats in which M is equal to 2N and the first M/2 bytes are combined with the last M/2 bytes to generate a value that can be compared with the N-byte checksum; and the use of an exclusive-OR combining function.

Support for the amendments herein can be found in the application as filed, for example in the description at pages 25-27 which describe an embodiment in which the application error checking information has a 4-byte format while the data storage error checking information has a 2-byte format.

In the Final Office Action, the rejection of claims 1-33 was maintained, and previously added claims 34-35 were rejected, based on the Pomerantz reference and alleged "admitted prior art" in the Background. This rejection was subsequently maintained notwithstanding a telephone discussion between the Examiner and representatives of Applicants, Mr. Barry Chapin and Mr. Jim Thompson, on November 4, 2004, as well as a later response to the final Office

Action mailed November 9, 2004 that proposed amendments to the independent claims and several dependent claims along the lines amended herein. The Examiner thereafter issued the aforementioned Advisory Action indicating that the amendment did not place the application in condition for allowance and would not be entered.

The Advisory Action refers to paragraph 4.2 of the final Office Action and states, in response to remarks presented in the preceding amendment, that "no 'incompatible' language is seen in the claims." In the present amendment, language has been added to the independent claims to specify that the M-byte checksum format of the application error information is incompatible with the N-byte checksum format of the data storage error information and therefore cannot be compared therewith. The claims continue to specify that the application error checking information is converted into a format that is compatible with the format of the data storage error checking information, and that the application error checking information is then compared, in the format that is compatible with the data storage error checking information, to the data storage error checking information to determine if the data contains an error upon receipt.

The rejection in view of Pomerantz and the "admitted prior art" is respectfully traversed with respect to the claims as amended herein.

All of the pending independent claims include features similar to the following recited in claim 1:

...wherein N is different from M such that the format of the application error checking information is incompatible with the format of the data storage error checking information and cannot be compared therewith;

converting each application error checking information M-byte value into a corresponding N-byte value such that the data storage error checking information is in a compatible format with and can be compared with the application error checking information;

It is respectfully submitted that neither the "admitted prior art" nor the Pomerantz reference teaches or suggests such features, and therefore these references cannot render any claim containing these features unpatentable.

The Background of the present application describes two distinct techniques known in the prior art. First, it is known in hardware and software systems to employ a checksum value in a packet header for error-checking purposes. When a packet is received, the receiving device calculates a checksum from the data of the packet and compares this value with the value of the checksum in the packet header. If the two checksums are the same, it is an indication that the packet is error-free. If the two checksums differ, it is an indication that the packet contains an error.

Second, conventional software applications, such as Oracle database software, embed error checking information in application data blocks. The error checking information is stored in the database as part of the application data block. When the application data block is subsequently read from the database, error checking information is computed based on its contents, and this error checking information is compared with the original error checking information that was stored with the application data block. A difference between the two sets of error checking information indicates that the application data block may contain an error.

Neither of these techniques discussed in the Background are concerned with using error checking information of incompatible formats, nor any conversion of error checking information from one format to another. This view seems to be in accord with the view expressed in the final Office Action.

As has been described previously, Pomerantz shows a method of carrying out a "data in burst" (i.e., a read request) from a storage device to a host. Storage control logic 140 receives a cyclic redundancy check (CRC) value from the storage device, and also calculates a CRC value during the transfer. There is nothing in Pomerantz that indicates that the received and calculated CRC values are of different or incompatible formats, nor is there any description of

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converting one CRC value into another format compatible with the other CRC. It appears that the CRC values are the same format and are compared directly as received and calculated.

In support of the rejection of claims 2-35 (which include claim 4), page 4 of the Office Action refers to various sections of Pomerantz. However, it is respectfully urged that none of the cited sections teaches or suggests the above-recited features of claim 1.

For example, col. 3 line 48 et seq. of Pomerantz (referred to in para. 4.2 of the final Office Action) describe that a host validates a demand portion of a data transfer by comparing an error code calculated by the device with an error code calculated by the host. In one embodiment, a 16-bit CRC code can be used. There is no indication that the host and device employ different-sized codes such as M-byte and N-byte checksums where M is different from N. In fact, it can be inferred that the host and device employ the same 16-bit format for the CRC codes. No conversion of the error codes is described in this section of Pomerantz, and none is seen to be necessary.

The final Office Action also states that col. 1 lines 28 et seq. of Pomerantz discloses a plurality of transfer protocols or conversion techniques for effecting data transfer handshaking between memory devices and host. However, this section of Pomerantz merely describes variants of the so-called "ATA" or "IDE" interface in which a CRC value calculated by a host is compared with a CRC value calculated by an I/O device to determine whether a transfer error has occurred. There is no indication that the format of the CRC value calculated by the host is incompatible with the format of the CRC value calculated by the device, and in fact the contrary can fairly be inferred, as there is no description of any conversion of formats that is required before the CRC values can be compared. Thus, this section of Pomerantz is not seen to disclose the above-recited portion of claim 1.

Finally, page 4 of the Final Office Action refers to col. 2 line 48 et seq. of Pomerantz and states that Pomerantz "teaches data compatibility via data/CRC

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partitioning means for more efficient data transfer, intermediate data/CRC sizing/detecting means followed by potential final data/CRC sizing/detecting means, which entails equivalent M-byte to N-byte conversions and logic adding means or module-based operations via EXOR means." As has been pointed out previously, this description of Pomerantz is very unclear, and therefore it is not useful to Applicant's representative in understanding how the claim language is being applied to Pomerantz. The nature of this lack of clarity is explained below, and a request is made for a clearer explanation of how the claims are being read on Pomerantz.

To begin with, col. 2 line 48 et seq. of Pomerantz constitute the Brief Description of the Drawings section, and are not seen to disclose any pertinent details of Pomerantz's technique. This citation in the Office Action appears to be erroneous. If the present rejection is maintained in a subsequent Office Action, it is respectfully requested that this citation be corrected to afford Applicant's representative an opportunity to respond.

In any event, Pomerantz is not seen to employ such terms as "data/CRC partitioning means," "intermediate data/CRC sizing/detecting means," and "final data/CRC sizing/detecting means" anywhere, and therefore Applicant's representative is at a loss to determine which aspects of Pomerantz are being referred to in the Office Action. As previously noted, the term "sizing" generally refers to adjusting the size of something. However, no such size adjusting is seen in Pomerantz, and the Office Action does not describe where any such size adjusting can be found. Thus, this description of Pomerantz does not provide adequate support for the present rejection.

The Examiner is respectfully reminded of the provisions of MPEP § 707.07(d), which require that the grounds of rejection be clearly stated. It is respectfully submitted that this particular aspect of the rejection in the final Office Action does not comply with this requirement, and therefore the rejection should either be clarified or withdrawn in a subsequent Office Action.

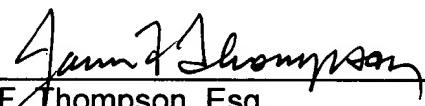
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For the reasons given above, it is respectfully urged that Pomerantz and the "admitted prior art" fail to teach or suggest all of the elements of the independent claims of this application, and therefore all the claims of this application are believed to be allowable.

The Examiner is also respectfully urged to give careful consideration to new claims 36-43, which are believed to recite additional subject matter also not found in Pomerantz or the other art of record.

Favorable action is respectfully requested.

Respectfully submitted,



James F. Thompson, Esq.
Attorney for Applicants
Registration No.: 36,699
CHAPIN & HUANG, L.L.C.
Westborough Office Park
1700 West Park Drive
Westborough, Massachusetts 01581
Telephone: (508) 366-9600
Facsimile: (508) 616-9805
Customer No.: 022468

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